

## THE CLAIMS

What is claimed is:

1. An electric motor linear speed controller, comprising:  
5 a digital to analog converter means for converting an 8-bit digital signal to an analog voltage for setting voltage across a motor;  
a digital state machine means for converting the duty cycle of an input signal for output to the digital to analog converter means; and  
a closed loop feedback loop means for monitoring and setting the voltage across the  
10 motor.
2. The controller according to claim 1, further comprising an over-current sense circuit for monitoring the current across the electric motor.
- 15 3. The controller according to claim 1, further comprising an over/under voltage sense circuit for monitoring a supply voltage to the electric controller.
4. A circuit arrangement in a variable speed electric motor controller, comprising:  
20 a controller logic circuit for operating a controller logic finite state machine, wherein the state machine sets the voltage supplied to an electric motor; and  
a closed loop feedback for generating a signal indicating the voltage across the electric motor, the signal being input to the state machine for monitoring thereof.
- 25 5. The circuit arrangement of claim 4, wherein the state machine comprises at least a running state.
6. The circuit arrangement of claim 5, further comprising one or more of the following set of states: a sleep state, a lockout state, an overcurrent state, a timeout state, or  
30 a battery check state.
7. The circuit arrangement of claim 4, wherein the controller logic circuit comprises a microprocessor and a memory, each configured for collectively controlling the state machine.

8. The circuit arrangement of claim 4, additionally comprising a digital to analog converter for converting an 8-bit digital signal to an analog voltage for setting the voltage supplied to the electric motor.

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9. The circuit arrangement of claim 4, wherein the circuit arrangement is directly coupled with the electric motor.

10. A system for controlling an electric automotive component comprising the component and the electric motor linear speed control of claim 1.

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11. The system according to claim 10, wherein the component is an electric motor.

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12. The system according to claim 10, wherein the component is an electric light.

13. The system according to claim 10, further comprising an over-current sense circuit for monitoring the current across the electric motor.

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14. The system according to claim 10, further comprising an over/under voltage sense circuit for monitoring a supply voltage to the electric controller.

15. A system for controlling the speed of an electric motor, the voltage across the electric motor determining the speed of the electric motor, the system comprising:  
a digital to analog converter means, for converting a digital signal to analog voltage for setting a voltage across said electric motor;

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a microprocessor and associated digital memory for generating the digital signal, said microprocessor configured to instantiate and operate a digital state machine for converting the duty cycle of an input signal generated by an associated closed loop feedback means; and

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a closed loop feedback loop means, for monitoring the voltage across said motor and generating a signal for input to the microprocessor.

16. An automobile comprising the system of claim 15.

17. The automobile of claim 16, wherein the system comprises a temperature-control system.

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18. A linear speed control for an automotive electric motor, comprising:  
a digital state machine for converting the duty cycle of an input signal generated by  
an associated closed loop feedback;

10 an over-current sense circuit, for monitoring the current across said electric motor;  
an over/under voltage sense circuit, for monitoring a supply voltage to the electric  
controller;

a digital to analog converter, for converting an 8-bit digital signal to analog voltage  
for setting voltage across said electric motor; and

15 a closed loop feedback loop, for monitoring the voltage across said motor and  
generating a signal for input to said digital state machine.